

### **Abstract of the Disclosure**

66        High purity ammonium dimolybdate or molybdenum oxide is produced by the pressure oxidation of low grade molybdenite concentrates or molybdenum intermediates. The process entails nearly complete oxidation of the sulfide minerals while optimizing the process chemistry and autoclave conditions to solubilize as little of the molybdenum values as possible. The autoclave discharge 12 is then subjected to a leaching step, either an alkaline leach 50, 400 or ammonium leach 250 process, before or after a liquid/solid separation step 20, 220, 410. The solution is then subjected to (a) filtration 60, 410, solvent extraction 70, 440, crystallization 90, 450, and calcination 120, 480 or (b) filtration 260, 280, crystallization 290, and calcination 320 to produce a product suitable for chemical-grade molybdenum oxide 125, 325, 485.